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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,068	07/05/2001	Mutsuyoshi Ito	SON-2158	1305

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EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

09/898,068

Applicant(s)

ITO, MUTSUYOSHI

Examiner

David E Graybill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) 7,8 and 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

The amendment to the claims filed 9-24-2 is non-responsive to the Office action filed 6-24-2 because it fails to conform to the provisions of MPEP 714.03:

714.03 Amendments Not Fully Responsive - Action To Be Taken:

Where a bona fide response to an examiner's action is filed before the expiration of a permissible period, but through an apparent oversight or inadvertence some point necessary to a complete response has been omitted - such as an amendment or argument as to one or two of several claims involved or signature to the amendment - the examiner, as soon as he or she notes the omission, should require the applicant to complete his or her response within a specified time limit (usually one month) if the period for response has already expired or insufficient time is left to take action before the expiration of the period. If this is done the application should not be held abandoned even though the prescribed period has expired.

Specifically, in claims 9 and 12, the rejection directed to the term "both sides" has not been addressed.

Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is incomplete, and in order to continue to afford applicant the benefit of compact prosecution, the requirement to complete the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

Applicant's election with traverse of Group I in Paper No. 7 is acknowledged. The traversal is on the ground that, "the product and method embodied by the originally filed claims 1-8, and currently embodied within 2, 4 and 7-20 have been previously acted upon on merits within the Office Action of June 24, 2002." This is not found persuasive because a restriction requirement between inventions previously examined on the merits is not

improper. Indeed, 37 CFR § 1.142(a) explicitly states that a restriction may be made at any time before final action.

§ 1.142 Requirement for restriction.

(a) If two or more independent and distinct inventions are claimed in a single application, the examiner in an Office action will require the applicant in the reply to that action to elect an invention to which the claims will be restricted, this official action being called a requirement for restriction (also known as a requirement for division). Such requirement will normally be made before any action on the merits; however, it may be made at any time before final action.

The traversal further appears to be on the ground that the inventions of Group I and Group II have been previously elected by original presentation, and therefore, allegedly, a second restriction requirement is improper. This traversal is respectfully traversed because a restriction requirement is not improper between inventions previously elected by original presentation. In fact, MPEP 811.02 explicitly clarifies that a second restriction requirement is proper following a first election.

811.02 Even After Compliance With Preceding Requirement.

Since § 37 CFR 1.142(a) provides that restriction is proper at any stage of prosecution up to final action, a second requirement may be made when it becomes proper, even though there was a prior requirement with which applicant complied. Ex parte Benke, 1904 C.D. 63, 108 O.G. 1588 (Comm'r Pat. 1904).

The traversal additionally appears to be on the ground that, allegedly, there must be a serious burden if restriction is not required, and the previous examination of both Groups I and II is evidence that there is no serious burden. This is not

found persuasive because there is a serious burden if restriction of Groups I and II is not required; although, in order to continue to afford applicant the benefit of compact prosecution, restriction was not initially required and a serious burden was incurred in the initial examination of both groups. However, the serious burden remains, and the right to require restriction at any time before final action is herein exercised.

For at least these reasons, and because the reasons for insisting on restriction as stated in MPEP 808 have been clearly met, the requirement is still deemed proper and is therefore made FINAL.

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 9 and 12 the scope of the term "both sides" is unclear because there is insufficient antecedent basis for the term.

In the rejections infra, reference labels are generally recited only for the first recitation of identical claim language.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 10 and 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Higgins (5291062).

The rejection is maintained as in the previous office action, and further clarified infra. At column 3, line 7 to column 5, line 44, column 6, lines 16-25, column 7, line 66 to column 9, line 20, column 9, lines 57-61, column 10, lines 54-

54-58, and column 12, lines 12-16, Higgins teaches the following:

2. A semiconductor package comprising: a first insulating substrate 42, 114 carrying a mounting portion for mounting a semiconductor device and a first electrically conductive pattern 48 electrically connected to said semiconductor device 12, 102; a sidewall section 44, 46 formed upright around said mounting portion of said first insulating substrate; a cavity 16, 106 defined by said first insulating substrate and the sidewall section and encapsulated by encapsulating resin as said semiconductor device is mounted on said mounting portion; and a second insulating substrate 52 provided in said cavity and on said sidewall section and carrying a second electrically conductive pattern 30 electrically connected to said first electrically conductive pattern via through-holes 50 formed in said sidewall section; wherein solder lands (all of the substrate 42, 114 metalization exposed in cavity, including 48, 108 and 116) are provided at least in said cavity on one surface of said first insulating substrate, wherein a heat radiating plate is provided on an opposite surface of said first insulating substrate.
10. The semiconductor package according to 2, wherein said encapsulating resin is planarized.

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11. The semiconductor package according to 2, wherein said second insulating substrate includes a cavity surface and a connection surface, said cavity surface being adjacent and in contact with said cavity and said sidewall section, said connection surface being opposite said cavity surface, said connection surface having a plurality of external electrical connections 58 thereon, an external electrical connection of said plurality of external electrical connections providing a connection to an apparatus external from said semiconductor package, some external electrical connections of said plurality of external electrical connections being opposite said cavity, and other external electrical connections of said plurality of external electrical connections being opposite said sidewall section.

To further clarify the teaching of the limitation, "encapsulated by encapsulating resin as said semiconductor device is mounted," it is noted that the product of Higgins inherently possesses the structural characteristics imparted by the process limitation, "as said semiconductor device is mounted." See *In re Fitzgerald, Sanders, and Bagheri*, 205 USPQ 594 (CCPA 1980).

To further clarify the teaching of a second insulating substrate provided "in" the cavity, attention is directed to

applicant's abstract wherein applicant discloses that the second insulating substrate 10 is provided "in" the cavity 7, and it is further noted that the relative position of the substrate 10 and the cavity 7 is identical to the relative position of the second insulating substrate and the cavity of Higgins. Hence, the substrate of Higgins is provided in the cavity at least in the same sense that applicant's substrate is provided in the cavity.

To further clarify the teaching of solder lands, it is noted that the limitation "solder lands" is a statement of intended use of the product which does not result in a structural difference between the claimed product and the product of Higgins. Further, because the metalization of Higgins has the same structure as solder lands, it is inherently capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed product from the product of Higgins. Similarly, the manner in which a product operates is not germane to the issue of patentability of the product; *Ex parte Wikdahl* 10 USPQ 2d 1546, 1548 (BPAI 1989); *Ex parte McCullough* 7 USPQ 2d 1889, 1891 (BPAI 1988); *In re Finsterwalder* 168 USPQ 530 (CCPA 1971); *In re Casey* 152 USPQ 235, 238 (CCPA 1967). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531 (CCPA 1959).

"Apparatus claims cover what a device is, not what a device does [or is intended to do]." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

To further clarify the teaching that the encapsulating resin is planarized, the encapsulating resin is made flat at least at portions where it abuts the device and the first substrate, for example, as illustrated in Figure 5; therefore, the resin is planarized at least at those portions.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 9 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins as applied to claims 2, 10 and 11 supra, and further in combination with applicant's admitted prior art.

As cited, Higgins teaches the following:

4. A semiconductor package comprising: a first insulating substrate carrying a mounting portion for mounting a semiconductor device and a first electrically conductive pattern

electrically connected to said semiconductor device; a sidewall section formed upright around said mounting portion of said first insulating substrate; a cavity defined by said first insulating substrate and the sidewall section and encapsulated by encapsulating resin as said semiconductor device is mounted on said mounting portion; and a second insulating substrate provided in said cavity and on said sidewall section and carrying a second electrically conductive pattern electrically connected to said first electrically conductive pattern via through-holes formed in said sidewall section; wherein solder lands are provided at least in said cavity on one surface of said first insulating substrate.

13. The semiconductor package according to 4, wherein said encapsulating resin is planarized.

14. The semiconductor package according to 4, wherein said second insulating substrate includes a cavity surface and a connection surface, said cavity surface being adjacent and in contact with said cavity and said sidewall section, said connection surface being opposite said cavity surface, said connection surface having a plurality of external electrical connections thereon, an external electrical connection of said plurality of external electrical connections providing a connection to an apparatus external from said

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semiconductor package, some external electrical connections of said plurality of external electrical connections being opposite said cavity, and other external electrical connections of said plurality of external electrical connections being opposite said sidewall section.

However, Higgins does not appear to explicitly teach wherein said second insulating substrate is lined on one side with copper, or the following:

9. The semiconductor package according to 2, wherein said first insulating substrate is lined on both sides of the insulating substrate with copper.

12. The semiconductor package according to 4, wherein said first insulating substrate is lined on both sides of the insulating substrate with copper.

Nonetheless, as cited, Higgins teaches that the first insulating substrate is lined on one side with copper ["copper plane"] and on another side with conductive traces, and the second substrate is lined on one side with conductive traces. Moreover, at page 1, lines 16-19, page 2, lines 18-21, and page 6, line 3, applicant teaches that copper conductive traces are well known.

Furthermore, it would have been obvious to combine the well known product with the product of Higgins because it would facilitate provision of the conductive traces.

Applicant's amendment and remarks filed 9-24-2 have been fully considered, are addressed in the rejection supra, and are further addressed infra.

Applicant states, "Within claims 4 and 7, the first and second insulating substrates, each, are laminated sheets lined with copper. The Office Action correctly admits that these features are not found within Higgins."

This statement is respectfully traversed because claim 7 is not examined on the merits. Furthermore, it is respectfully submitted that there is no admission that the features that the first and second insulating substrates, each, are laminated sheets lined with copper are not found within Higgins. Instead, it is maintained that Higgins does not appear to explicitly teach wherein the second insulating substrate is lined on one side with copper, or the first insulating substrate is lined on both sides of the insulating substrate with copper.

Also, applicant appears to contend that the motivation to combine Higgins with the well known prior art is insufficient because it "amounts to nothing more than an 'obvious-to-try' situation."

This apparent contention is respectfully traversed because the motivation is not that it would have been obvious to try the combination of applied prior art, but that it would have been obvious to do the combination of the applied prior art.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to illustrate the art recognized meaning of the term "solder land."

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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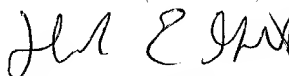
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Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is 703/308-7722.



David E. Graybill
Primary Examiner
Art Unit 2827

D.G.
3-Apr-03